

Claims

1. Method for obtaining highly reactive calcium sorbents from fine grained calcium carbonate and/or fly-ashes, through mechanical de-agglomeration and activation by free particles collisions at the speed at least 8 m/sec., of the mixture containing 20÷60% by weight, beneficially 40% of fine grained calcium carbonate with grain size below 150 μm and content at least 92% by weight of pure CaCO_3 with fly-ashes, coming from combustion of coal fuels, especially in boilers with fluidized bed furnaces or equipped with powdered fuel burners, where the dry desulfurization of exhaust gases is used, characterized in that calcium carbonate is being preliminary mixed with ashes containing by weight from 25% to 45% of SiO_2 , from 3% to 25% of Al_2O_3 , from 10% to 40% of CaO , from 5% to 15% of SO_3 , and then the mixture is being mechanically de-agglomerated and activated.

2. Method for obtaining the highly reactive calcium sorbents, from fine grained calcium carbonate and/or fly-ashes, through mechanical de-agglomeration and activation by free collisions of particles at the speed at least 8 m/sec of fly-ashes, coming from combustion of coal fuels, especially in boilers with fluidized bed furnaces or equipped with powdered fuel burners, where the dry desulfurization of exhaust gases is used, characterized in that ashes containing by weight 25% to 45% of SiO_2 , from 3% to 25% of Al_2O_3 , from 10% to 40% of CaO , from 5% to 15% of SO_3 are mechanically de-agglomerated and activated.

3. Method for obtaining binding materials, from fly-ashes coming from combustion of coal fuels, especially in boilers with fluidized bed furnaces or equipped with powdered fuel burners, where the dry desulfurization of exhaust gases is used, based on mechanical de-agglomeration and activation through free particles collisions at the speed at least 8 m/sec, characterized in that ashes containing by weight from 25% to 45% of SiO_2 , from 3% to 25% of Al_2O_3 , from 10% to 40% CaO , from 5% to 15% SO_3 , beneficially with addition 51% of activator, are being mechanically de-agglomerated and activated.

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4. Method for manufacturing the binding materials, according to Claim 3, characterized in that as activator the Portland cement or slag, or linker, or their compositions 1 to 51% by weight are used, beneficially 5 to 20% by weight.

5. Device for manufacturing highly reactive calcium sorbents and/or binding materials, consisting of a container closed with cover, which has inside a dielectric layer, of a process chamber, closed with an open cone and a flat bottom, with the central hole, where the shaft with rotor fastened to it, passes through, and disc of rotor has radially fastened arms, bearings of rotor and his drive are covered by dust-proof housing, whereas inside of process chamber there is a grid of rods, characterized in that centrally located in axis of rotor (8) the ashes inlet pipe (2) has a tapered, expanding to bottom outlet, and to the disc (9) of rotor (8) set of arms (10) equipped with angle blades (11), is radially fastened, and every second arm (10) is in the plane of rotor disc (8), the others have a rise from 1° to 2,5°, and between outer, cylindrical surface of process chamber (3) and cylindrical, inside surface of container (5) there is fastened cylindrical basket (16), electrically connected to the body of container (5).